

**STANDARD CHLORINE CHEMICAL CO. INC. SUPERFUND SITE
MONTHLY PROGRESS REPORT
APRIL 2016**

I. Actions Completed During the Reporting Period (April 2016)

The Group and EPA met on April 14, 2016 to review the site status and discuss the Focused Feasibility Study (FFS) Report submitted on March 31, 2016.

The Group received and reviewed the HCIA geotechnical assessment regarding effects of HCIA fill placement on slurry wall.

II. Results of Sampling, Tests, and Data Received by Respondents

Data received by Respondents during the reporting period included routine data associated with the operations and maintenance of Hydraulic Control Treatment System (HCTS). These data are summarized on a quarterly-basis in an appendix to the monthly progress reports. The O&M summary for the first quarter of 2016 is included as Appendix A of this monthly progress report.

III. Work Planned for the Next Two Months (May and June 2016)

Following completion of EPA's review and receipt of any agency comments, the FFS Report will be revised as necessary to address agency comments and resubmitted to EPA.

Routine operations and maintenance activities will continue.

Monthly progress reports will continue to be prepared and submitted to EPA.

IV. Problems Encountered/Anticipated Delays

None this reporting period.

V. Operations and Maintenance Information

Routine operations and maintenance activities were completed. A summary of operations and maintenance activities are provided on a quarterly-basis. The O&M summary for the first quarter of 2016 is included as Appendix A of this monthly progress report.

APPENDIX A

**STANDARD CHLORINE CHEMICAL CO. INC. SITE- O&M STATUS REPORT
QUARTERLY REPORT No. 12
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KEARNY, NEW JERSEY**

1.0 DESCRIPTION OF ACTIVITIES COMPLETED

1.1 HYDRAULIC CONTROL TREATMENT SYSTEM (HCTS)

- Continued routine HCTS operation, monitoring, inspection and reporting efforts as summarized below:
 - Average monthly flows for January, February and March 2016 were 21.1 gpm, 23.8 gpm and 21.4 gpm, respectively. The total volume of water treated this reporting period was 2,958,315 gallons.
 - Monthly NJPDES sample collection pursuant to NJ Permit No. NJ0155438 was completed. There were no exceedances of permit monitored constituents noted during this period.
 - The Hydraulic Control (HC) well field remained operational during the first quarter of 2016 with minor periods of down time at several HC wells for maintenance. At the end of March 2016 the HC well field was observed to be fully operational with the exception of HCWU-22 which began exhibiting a reduction in flow during the fourth quarter of 2015. The 1-inch diameter subgrade groundwater conveyance line running from HCWU-22 to the HCTS building was evaluated and found to be obstructed by mineral scale buildup of varying degrees at various locations throughout the pipe run. Several high pressure jetting efforts coupled with acidification treatment of the line have been completed to date with moderate success. Jetting and acidification will continue into the 2nd quarter of 2016. It is expected that the obstruction will be removed with these subsequent line cleaning events.
- Water level gauging data collected during the reporting period from the piezometers, hydraulic control wells and DNAPL recovery wells are provided in Table 1. Figures 1 and 2 provide 2016 potentiometric surface data (representing a typical HCTS operational scenario for the reporting period), for both the surficial fill unit and deep sand unit, respectively. Figure 1 shows pronounced gradients toward HCWs across the site within the shallow fill unit.

Potentiometric surface elevation contours for the deep sand unit are provided on Figure 2. As indicated, the hydraulic gradient in the sand unit is essentially flat over the area enclosed by the barrier wall system. Similar to the shallow unit, substantial differentials between the water levels inside and outside of the slurry wall exist which is an

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indication of the lack of hydraulic communication and groundwater flux through the barrier wall in the deep sand unit.

Figures 3, 4 and 5 present graphs of the monthly (January, February and March 2016, respectively) water level measurements made in the shallow unit piezometers inside and outside of the slurry wall and the nearest hydraulic control well. The graphs show that hydraulic gradients inside the barrier wall continue to be inward toward the hydraulic control wells. The graphs also show substantial differentials continue to exist between the water levels inside and outside of the slurry wall. Such differentials are indicative of a lack of hydraulic communication between the fill unit inside and outside of the barrier wall and are demonstrative of the effective containment resulting from the low permeability barrier wall system.

1.2 DNAPL MEASUREMENT AND RECOVERY

- Apparent DNAPL thickness measurements from recovery wells are provided in Table 2. DNAPL recovery efforts for the first quarter of 2016 produced 139 gallons of DNAPL. A total of 6,118 gallons of DNAPL have been recovered from the DNAPL recovery well network since January 2012. Total DNAPL recovery to date is provided in the summary table below.

Well ID	January 28, 2016 DNAPL Recovery (gal)	February 29, 2016 DNAPL Recovery (gal)	March 15, 2016 DNAPL Recovery (gal)	Total DNAPL Recovered (gal)
DRWL-1	NR	NR	NR	435
DRWL-5	NR	NR	NR	443
DRWL-7	NR	NR	NR	50
DRWL-9	NR	NR	NR	921
DRWL-10	NR	NR	NR	181
DRWL-11	48	53	29	4,073
MW-D-28	3	3	3	15

The monthly DNAPL thickness measurements summarized in Table 2 were made on the dates indicated therein. The DNAPL thickness measurements are made in concert with Site-wide water level

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measurements (See Table 1). The dates of these measurements do not correspond to the dates of the monthly DNAPL removal events.

1.3 NON-HCTS INSPECTIONS

- Continued post-construction inspections of the surface covers, cathodic protection system/steel sheet pile wall, stormwater management system, freshwater wetlands, fences and slurry wall working platform.

1.4 ADDITIONAL COMPLETED EFFORTS

- None this period.

2.0 PROJECTED FUTURE ACTIVITIES

2.1 HCTS RELATED EFFORTS

- Continue routine HCTS operations, monitoring and maintenance.
- The first semiannual WET testing is scheduled to be performed during the week of April 25, 2016 in accordance with NJPDES Permit No. NJ0155438.
- DNAPL recovery will continue.

2.2 NON-HCTS RELATED EFFORTS

- Routine Non-HCTS (consolidation area and IRM surface covers) inspections and maintenance will continue.
- Soil erosion areas and re-vegetation issues will be addressed, as necessary.
- Quarterly inspections of the surface cover systems and repair (as necessary) will continue.
- The Final Annual Wetland Mitigation report will be submitted in May 2016.

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TABLES

Table 1

Standard Chlorine Chemical Co., Inc.
1st Quarter 2016 Progress Report
HCTS Gauging Data Summary

Well ID	Top of Casing Elevation MSL (NAD 83)	20-Jan-16			17-Feb-16			9-Mar-16		
		Depth to Water (ft-TOC)	Total Depth (ft- TOC)	Groundwater Elevation MSL (NAD 83)	Depth to Water (ft-TOC)	Total Depth (ft- TOC)	Groundwater Elevation MSL (NAD 83)	Depth to Water (ft-TOC)	Total Depth (ft- TOC)	Groundwater Elevation MSL (NAD 83)
HC-PZ-1U	11.18	6.89	16.70	4.29	6.90	16.69	4.28	6.71	16.69	4.47
HC-PZ-2U	11.32	6.28	16.10	5.04	5.95	16.10	5.37	6.05	16.10	5.27
HC-PZ-3U	10.33	5.57	15.00	4.76	6.28	15.00	4.05	5.84	15.00	4.49
HC-PZ-4U	10.16	3.95	14.60	6.21	3.24	14.60	6.92	3.41	14.60	6.75
HC-PZ-6U	7.15	1.60	9.45	5.55	0.61	9.44	6.54	1.34	9.45	5.81
HC-PZ-7U	6.51	0.93	8.91	5.58	0.05	8.87	6.46	0.88	8.88	5.63
HC-PZ-8U ⁽²⁾	15.75	10.81	20.87	4.94	10.9	20.87	4.85	10.80	20.86	4.95
HC-PZ-9U ⁽²⁾	15.86	11.29	20.90	4.57	10.75	20.90	5.11	10.94	20.90	4.92
HC-PZ-10U ⁽²⁾	15.28	12.73	19.60	2.55	12.76	19.60	2.52	13.17	19.56	2.11
HC-PZ-11U ⁽²⁾	10.1	9.22	14.48	0.88	8.78	14.50	1.32	9.04	14.46	1.06
HC-PZ-12U	5.35	1.77	8.43	3.58	1.89	8.44	3.46	2.32	8.43	3.03
HC-PZ-13U	4.76	2.03	8.39	2.73	1.29	8.40	3.47	2.03	8.40	2.73
HC-PZ-14U	6.03	2.33	10.04	3.70	1.92	10.05	4.11	2.21	10.02	3.82
HC-PZ-15U	8.28	5.00	11.75	3.28	3.95	11.75	4.33	4.99	11.75	3.29
HC-PZ-1L	11.48	7.78	25.05	3.70	7.62	25.05	3.86	7.72	25.10	3.76
HC-PZ-2L	12.15	8.91	23.54	3.24	8.70	23.55	3.45	8.94	23.55	3.21
HC-PZ-3L	9.97	5.89	23.50	4.08	5.68	23.50	4.29	5.87	23.50	4.10
HC-PZ-4L	9.17	6.65	20.55	2.52	4.62	20.55	4.55	6.73	20.53	2.44
HC-PZ-6L	6.06	2.32	16.80	3.74	3.08	16.80	2.98	3.15	16.80	2.91
HC-PZ-7L	5.5	1.13	16.99	4.37	0.93	16.99	4.57	1.01	16.99	4.49
HC-PZ-8L ⁽²⁾	14.89	10.88	29.07	4.01	10.65	29.09	4.24	10.74	29.05	4.15
HC-PZ-9L ⁽²⁾	15.3	12.05	28.70	3.25	11.62	28.69	3.68	11.89	28.69	3.41
HC-PZ-10L ⁽²⁾	15.98	13.12	29.85	2.86	12.97	29.85	3.01	13.46	30.83	2.52
HC-PZ-11L ⁽²⁾	8.96	7.86	22.05	1.10	7.48	22.05	1.48	7.70	22.05	1.26
HC-PZ-12L	5.07	1.30	15.75	3.77	1.19	15.75	3.88	1.45	15.75	3.62
HC-PZ-13L	4.77	2.66	16.18	2.11	2.11	16.19	2.66	2.50	16.16	2.27
HZ-PZ-14L	6.43	2.81	18.85	3.62	2.61	18.85	3.82	2.75	18.85	3.68
SC-MW-16L	8.02	4.78	19.82	3.24	4.29	19.82	3.73	4.82	19.82	3.20
MW-D-28	8.88	7.93	25.91	0.95	7.73	25.91	1.15	7.72	25.91	1.16
MW-D-35	7.11	5.95	24.42	1.16	5.56	24.42	1.55	5.79	24.42	1.32
MW-D-37	15.13	14.00	31.70	1.13	13.57	31.70	1.56	13.79	31.70	1.34
MW-D-38	6.57	5.38	22.76	1.19	5.05	22.76	1.52	5.25	22.76	1.32
MW-D-39	4.77	3.44	20.69	1.33	3.15	20.69	1.62	3.24	20.69	1.53

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HCWU-1	10.30	10.55	13.60	-0.25	11.72	13.59	-1.42	8.27	13.41	2.03
HCWU-2	10.91	10.78	10.31	0.13	11.38	10.30	-0.47	9.35	10.30	1.56
HCWU-3	9.85	10.75	10.25	-0.90	10.11	10.24	-0.26	11.81	12.50	-1.96
HCWU-4	8.54	10.92	12.96	-2.38	11.32	12.94	-2.78	4.61	12.95	3.93
HCWU-5	8.16	5.81	12.30	2.35	5.91	12.30	2.25	4.87	11.50	3.29
HCWU-6	5.84	6.81	10.34	-0.97	0.49	10.35	5.35	5.89	10.35	-0.05
HCWU-7	5.52	5.37	8.76	0.15	0.91	8.75	4.61	1.31	8.74	4.21
HCWU-8	5.65	6.48	7.24	-0.83	0.12	7.25	5.53	4.11	7.25	1.54
HCWU-9	5.66	3.51	6.83	2.15	4.21	6.85	1.45	4.32	6.80	1.34
HCWU-10	4.28	3.38	7.58	0.90	3.06	7.60	1.22	3.84	7.60	0.44
HCWU-11	5.96	3.22	8.35	2.74	0.62	8.35	5.34	4.57	8.38	1.39
HCWU-12	5.26	4.89	8.25	0.37	1.03	8.27	4.23	1.69	8.27	3.57
HCWU-13	4.14	5.55	7.86	-1.41	4.80	7.85	-0.66	4.44	7.85	-0.30
HCWU-14	2.95	-0.56	5.37	3.51	-0.89	5.40	3.84	-0.57	5.40	3.52
HCWU-15	4.44	4.25	8.77	0.19	1.38	8.77	3.06	4.74	8.77	-0.30
HCWU-16	3.98	6.58	8.49	-2.60	-0.18	8.50	4.16	1.21	8.50	2.77
HCWU-17	3.31	-0.08	7.48	3.39	-1.00	7.50	4.31	-0.37	7.50	3.68
HCWU-18	3.16	3.92	6.50	-0.76	4.22	6.49	-1.06	2.14	6.49	1.02
HCWU-19	2.97	-0.77	8.40	3.74	-1.22	8.39	4.19	-0.67	8.39	3.64
HCWU-20	3.32	3.17	7.30	0.15	3.42	7.28	-0.10	0.61	7.30	2.71
HCWU-21	13.41	12.82	17.03	0.59	12.92	17.05	0.49	13.02	16.54	0.39
HCWU-22	4.99	1.50	9.70	3.49	4.47	9.71	0.52	5.41	9.70	-0.42
HCWU-23 ⁽²⁾	11.53	13.77	11.99	-2.24	13.81	12.00	-2.28	13.49	16.26	-1.96
HCWU-24	10.87	13.89	16.23	-3.02	11.07	16.22	-0.20	11.31	16.25	-0.44
HCWU-25	16.60	15.93	21.40	0.67	16.65	21.38	-0.05	12.30	21.41	4.30
HCWU-26 ⁽²⁾	11.71	15.56	17.49	-3.85	15.58	17.50	-3.87	9.89	17.56	1.82

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DRWU-1	5.17	1.09	10.65	4.08	0.58	10.65	4.59	1.03	10.65	4.14
DRWU-2	5.63	1.47	11.81	4.16	1.00	11.80	4.63	1.45	11.80	4.18
DRWU-3	16.13	11.62	22.35	4.51	11.51	22.35	4.62	11.40	22.35	4.73
DRWU-4	4.71	0.64	12.15	4.07	0.01	12.14	4.70	0.58	12.14	4.13
DRWU-5	2.80	-0.98	8.80	3.78	-1.26	8.81	4.06	-1.03	8.81	3.83
DRWL-1	7.35	3.06	31.90	4.29	2.80	31.90	4.55	3.02	31.90	4.33
DRWL-2	3.09	-0.46	26.87	3.55	-0.83	26.89	3.92	-0.48	26.89	3.57
DRWL-3	3.87	0.03	28.85	3.84	-0.43	28.85	4.30	0.11	28.85	3.76
DRWL-4	5.65	1.67	30.45	3.98	1.49	30.45	4.16	1.63	30.45	4.02
DRWL-5	5.74	0.66	29.65	5.08	-0.25	29.65	5.99	0.99	29.65	4.75
DRWL-6	17.36	13.19	40.79	4.17	13.03	40.80	4.33	13.05	40.80	4.31
DRWL-7	2.76	-0.96	27.15	3.72	-1.30	27.15	4.06	-1.00	27.15	3.76
DRWL-8	3.17	-0.58	28.63	3.75	-0.97	28.65	4.14	-0.69	28.65	3.86
DRWL-9	4.69	0.51	28.30	4.18	0.15	28.30	4.54	0.44	28.30	4.25
DRWL-10 ⁽¹⁾	12.52	8.75	36.61	3.77	8.57	36.61	3.95	8.79	36.61	3.73
DRWL-11	11.13	8.40	36.20	2.73	8.31	36.20	2.82	8.32	36.20	2.81

(1) Top of casing elevation at DRWL-10 is estimated based on field measurements pending final casing extension efforts.

(2) - Well raised to accommodate proposed PDM placement by HCIA. Top of casing resurveyed in October 2015

NM - Indicates no measurement was taken

Table 2

Standard Chlorine Chemical Co., Inc.
1st Quarter 2016 Progress Report
DNAPL Summary

Well ID	20-Jan-16				17-Feb-16				9-Mar-16			
	Depth to Water (ft-TOC)	Depth to DNAPL (ft-TOC)	Total Depth (ft- TOC)	DNAPL Thickness (ft)	Depth to Water (ft-TOC)	Depth to DNAPL (ft-TOC)	Total Depth (ft- TOC)	DNAPL Thickness (ft)	Depth to Water (ft-TOC)	Depth to DNAPL (ft-TOC)	Total Depth (ft- TOC)	DNAPL Thickness (ft)
DRWU-1	1.09	10.65	10.65	Trace	0.58	10.65	10.65	Trace	1.03	10.65	10.65	Trace
DRWU-2	1.47	NP	11.81	NP	1.00	NP	11.80	NP	1.45	NP	11.80	NP
DRWU-3	11.62	22.35	22.35	Trace	11.51	22.35	22.35	Trace	11.40	22.35	22.35	Trace
DRWU-4	0.64	NP	12.15	NP	0.01	NP	12.14	NP	0.58	NP	12.14	NP
DRWU-5	-0.98	NP	8.80	NP	-1.26	NP	8.81	NP	-1.03	NP	8.81	NP
DRWL-1	3.06	30.50	31.90	1.40	2.80	30.15	31.90	1.75	3.02	29.90	31.90	2.00
DRWL-2	-0.46	NP	26.87	NP	-0.83	NP	26.89	NP	-0.48	NP	26.89	NP
DRWL-3	0.03	NP	28.85	NP	-0.43	NP	28.85	NP	0.11	NP	28.85	NP
DRWL-4	1.67	30.45	30.45	Trace	1.49	30.45	30.45	Trace	1.63	30.45	30.45	Trace
DRWL-5	0.66	29.10	29.65	0.55	-0.25	29.05	29.65	0.60	0.99	29.05	29.65	0.60
DRWL-6	13.19	NP	40.79	NP	13.03	NP	40.80	NP	13.05	NP	40.80	NP
DRWL-7	-0.96	26.65	27.15	0.50	-1.30	26.65	27.15	0.50	-1.00	26.65	27.15	0.50
DRWL-8	-0.58	NP	28.63	NP	-0.97	NP	28.65	NP	-0.69	NP	28.65	NP
DRWL-9	0.51	26.55	28.30	1.75	0.15	26.55	28.30	1.75	0.44	26.55	28.30	1.75
DRWL-10	8.75	35.56	36.61	1.05	8.57	35.21	36.61	1.40	8.79	35.11	36.61	1.50
DRWL-11	8.40	33.20	36.20	3.00	8.31	33.40	36.20	2.80	8.32	34.90	36.20	1.30
MW-D-28	7.93	20.81	25.91	5.10	7.73	21.41	25.91	4.50	7.72	20.90	25.91	5.01
MW-D-35	5.95	NP	24.42	NP	5.56	NP	24.42	NP	5.79	NP	24.42	NP
MW-D-37	14.00	31.30	31.70	NP	13.57	31.30	31.70	0.40	13.79	31.30	31.70	0.40
MW-D-38	5.38	NP	22.76	NP	5.05	NP	22.76	NP	5.25	NP	22.76	NP
MW-D-39	3.44	NP	20.69	NP	3.15	NP	20.69	NP	3.24	NP	20.69	NP

ft-TOC: feet below top of casing.

NP: no product detected

MW-D-28 and MW-D-35 were added to the routine monthly O&M efforts in September 2015

MW-D-37, MW-D-38 and MW-D-39 were added to the routine monthly O&M efforts in November 2015

DNAPL observed at MW-D-37 is not related to the SCCC Site

DNAPL thickness measurements are made in concert with the site-wide water level measurements. The dates of these measurements do not correspond to the dates of the monthly DNAPL removal events.

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FIGURES









